

MBR20HxxCT, MBRF20HxxCT & MBRB20HxxCT Series



Vishay Semiconductors

formerly General Semiconductor

Maximum Ratings (T_C = 25 °C unless otherwise noted)

Parameter	Symbol	MBR20H35CT	MBR20H45CT	MBR20H50CT	MBR20H60CT	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	35	45	50	60	V
Working peak reverse voltage	V _{RWM}	35	45	50	60	V
Maximum DC blocking voltage	V _{DC}	35	45	50	60	V
Max. average forward rectified current (see fig. 1) <i>Total device Per leg</i>	I _{F(AV)}	20 10				A
Peak repetitive forward current at T _C = 150 °C per leg (rated V _R , 2.0KHz sq. wave)	I _{FRM}	20				A
Non-repetitive avalanche energy per leg at 25 °C, I _{AS} = 4 A, L = 10 mH	E _{AS}	80				mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) per leg	I _{FSM}	150				A
Peak repetitive reverse surge current per leg at t _p = 2.0 μs, 1 KHz	I _{RRM}	1.0	0.5			A
Peak non-repetitive reverse energy (8/20 μs waveform)	E _{RSM}	20	10			mJ
Electrostatic discharge capacitor voltage Human body model: C = 100 pF, R = 1.5 kΩ	V _C	25				kV
Voltage rate of change (rated V _R)	dv/dt	10,000				V/μs
Operating junction temperature range	T _J	-65 to +175				°C
Storage temperature range	T _{STG}	-65 to +175				°C
RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V _{ISOL}	4500 ⁽¹⁾ 3500 ⁽²⁾ 1500 ⁽³⁾				V

Electrical Characteristics (T_C = 25 °C unless otherwise noted)

Parameter	Symbol	MBR20H35CT, MBR20H45CT				MBR20H50CT, MBR20H60CT		Unit		
		Typ	Max	Typ	Max	Typ	Max			
Maximum instantaneous forward voltage per leg ⁽⁴⁾ at I _F = 10 A T _J = 25 °C at I _F = 10 A T _J = 125 °C at I _F = 20 A T _J = 25 °C at I _F = 20 A T _J = 125 °C	V _F	–	0.63	–	0.71	0.49	0.55	0.57	0.61	V
Maximum instantaneous reverse current at rated DC blocking voltage per leg ⁽⁴⁾	I _R	–	100	–	100	4.0	12	2.0	12	μA mA

Thermal Characteristics (T_C = 25 °C unless otherwise noted)

Parameter	Symbol	MBR	MBRF	MBRB	Unit
Thermal resistance from junction to case per leg	R _{θJC}	2.0	4.0	2.0	°C/W

Notes:

(1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
(2) Clip mounting (on case), where leads do overlap heatsink

(3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")
(4) Pulse test: 300μs pulse width, 1% duty cycle

Ordering Information

Product	Case	Package Code	Package Option
MBR20H35CT – MBR20H60CT	TO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRF20H35CT – MBRF20H60CT	ITO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRB20H35CT – MBRB20H60CT	TO-263AB	31	13" reel, 800/reel, 4.8K/carton
		45	Anti-Static tube, 50/tube, 2K/carton
		81	Anti-Static 13" reel, 800/reel, 4.8K/carton



Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 – Forward Current Derating Curve

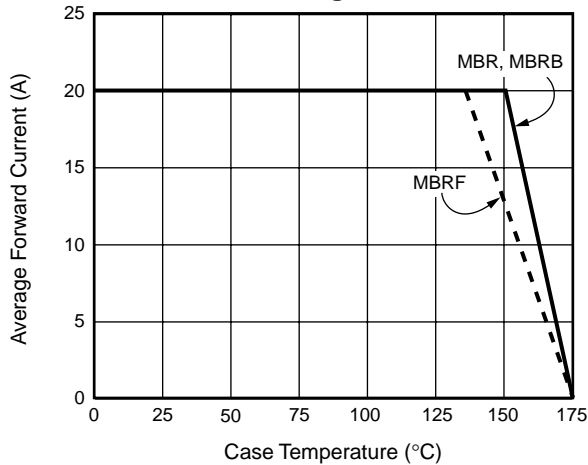


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current Per Leg

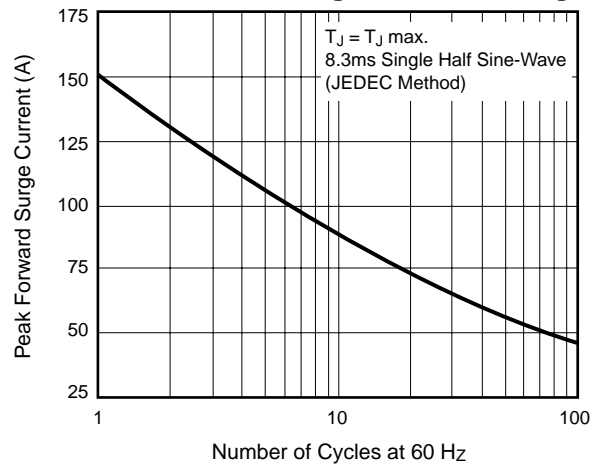


Fig. 3 – Typical Instantaneous Forward Characteristics Per Leg

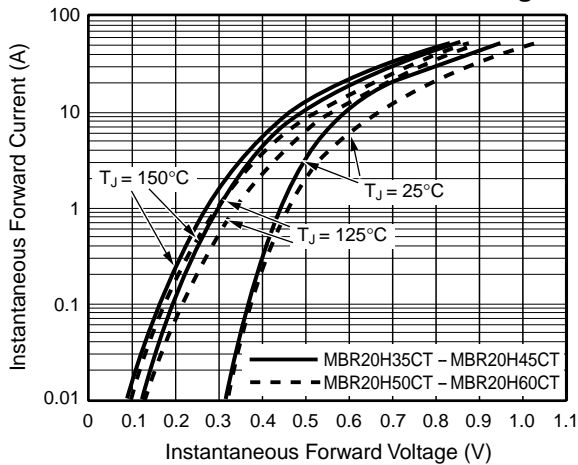


Fig. 4 – Typical Reverse Characteristics Per Leg

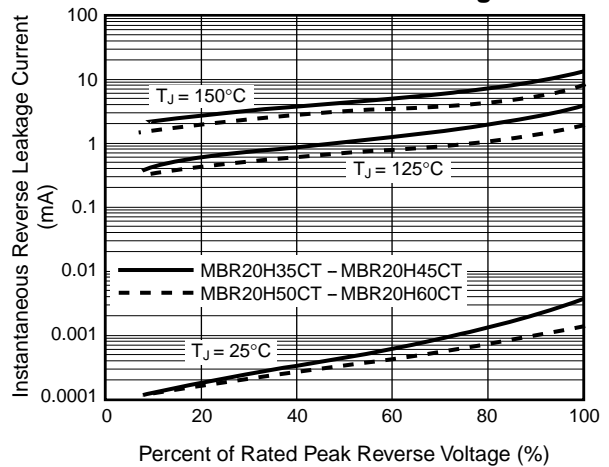


Fig. 5 – Typical Junction Capacitance Per Leg

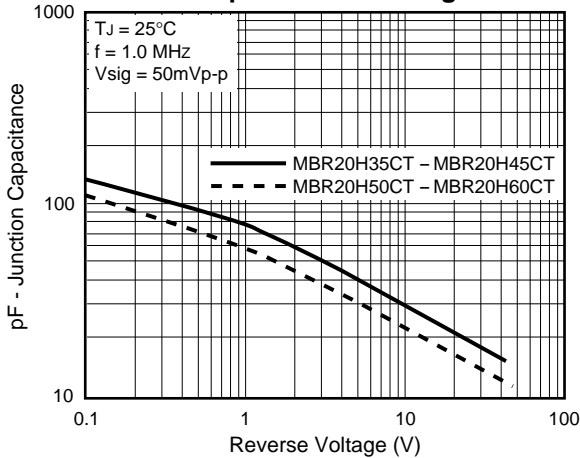


Fig. 6 – Typical Transient Thermal Impedance Per Leg

